

Housing as a social-ecological system: resilience, adaptive capacity and governance considerations

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Overview

Key question: what does new ecological theory offer to the investigation and establishment of socially and ecologically equitable housing systems?

1. Context: existing frameworks in housing studies
2. New ecology: resilience, adaptive capacity and adaptive comanagement
3. Introduction to fieldwork
4. Reflection on and implications of the utility of new ecology

1. Context

- Housing research has engaged with network theory, actor network theory and recently, complex adaptive systems theory
 - network theory focuses on the linkages and relationships between system bodies
 - actor network theory includes roles, actions and functions of non-human agents
 - complex adaptive systems theory considers these and emergent properties, feedback loops and initial conditions
 - to date, engagement with CAS has still tended to focus on human agency and factors

2. New ecology

- Prior concerns with stasis, balance
- New ecology:
 - focus on systemic complexity and functional redundancy; ability to respond to chaos, uncertainty and shock without compromise to core functionalities
 - focus on situatedness, scale effects and non-linearity
 - management systems set up on this base require multi-scale hybrid entities able to receive, decipher and respond to feedback through iterative learning processes

2. New ecology

- Basis of new ecology is an understanding of ecosystems as
 - “complex adaptive systems...in which properties and patterns at higher levels emerge from localized interactions and selection processes acting at lower scales and may feed back to influence the subsequent development of those interactions. They are characterized by nonlinear relations, threshold effects, historical dependency, multiple possible outcomes and, limited predictability”.

Olsson et al (2004: 76)

2. New ecology

- resilience
 - capacity of a system for renewal, reorganisation and development in the wake of shock or surprise
 - requires diversity and redundancy: system will hopefully hold latent creative responses to possible stresses or shocks within a multitude of apparently redundant components and capacities, within and across scales
- adaptive capacity
 - the ability of a system to draw on resources within and across scales to respond creatively to disturbance without loss of functionality
 - “the preconditions necessary to enable adaptation, including social and physical elements, and the ability to mobilize these elements” (Nelson, Adger & Brown (2007; p.397)

2. New ecology

- adaptive comanagement
 - “deals with the unpredictable interactions between people and ecosystems as they evolve together” (Berkes, Folke & Colding 1998; p.10)
 - iterative, based on learning through feedback loops between ecological phenomena and sociocultural institutions, policies and practices

2. New ecology in housing

- Functional resilience: means physical sustainability and sustainability of the implications of the built form
 - design, materials performance, occupancy and consumption patterns
- Also the diversification and adaptability of form and function
 - universal design, flexible design, muse apartments, cohousing
- Interweaving, overlap and blurring of spaces, behaviours and practices formerly scripted as ‘public’ or ‘private’; contextual enunciation of values
 - exchange, porosity and contextuality
- Feeds into considerations of social and economic justice as well as physical: affordability, accessibility.

2. New ecology in housing

- Housing governance and management:
 - “Adaptive comanagement relies on the collaboration of a diverse set of stakeholders operating at different levels, often in networks, from local users, to municipalities, to regional and national organizations, and also to international bodies”

Olsson et al (2004: 75-76).

2. New ecology in housing

- Housing governance and management:
 - particular factors have been documented as contributing to adaptive comanagement, including:
 - “vision, leadership, and trust; enabling legislation that creates social space for ecosystem management; funds for responding to environmental change and for remedial action; capacity for monitoring and responding to environmental feedback; information flow through social networks; the combination of various sources of information and knowledge; and sensemaking and arenas of collaborative learning for ecosystem management.” (Olsson et. al. 2004; p.75))

2. New ecology in housing

- While physical design features are relatively easily accommodated and to an extent, percolating through into mainstream urban design, of most importance and currently of greatest difficulty or unfamiliarity, is building corresponding institutional mechanisms embodying diversity and contextuality and hopefully, adaptive capacity.
 - This refers to systems and processes of housing construction, tenure, financing, governance and accessibility manifesting adaptive capacity and exhibiting locally appropriate responses to stress and change, such as the preservation of affordability

2. New ecology in housing

- Key issue: integration of physical and institutional design parameters in urban housing systems
- How might this be framed or examined? Adaptive capacity suggests looking for
 - particular forms, eg., multiplicity of stakeholders and their engagement, effective communication channels; and,
 - particular traits or ethics, eg., trust, iterative learning, etc.
 - opens up terrain for examining decision making processes, tenure forms, participation in planning, development and management

2. New ecology in housing

- Key issue: integration of physical and institutional design parameters in urban housing systems
- How can it be identified?
 - How is equity guaranteed? What is resilient may not necessarily be just.
 - Empowerment or offloading? Where is power in the system?
 - Potential pitfalls or things to watch out for?
 - “adaptive actions often reduce the vulnerability of those best placed to take advantage of governance institutions, rather than reduce the vulnerability of the marginalized.” Nelson et. al. (2007; p.410)

3. Fieldwork

- Community land trusts, USA
 - Non-profit bodies holding title to land for purposes of affordable housing and community benefit
 - Tripartite Board: resident members, non-resident members and public interest representatives
 - Improvements held by individuals, affordable housing providers, cooperatives, businesses, charities, community groups...
 - Renewable 99-yr ground lease between property holder and CLT

3. Fieldwork

Freestanding family houses,
Burlington VT





3. Fieldwork

Vermont Legal Aid on Champlain Housing Trust land



3. Fieldwork

Duplexes on land
held by Dudley
Street Neighbours,
Inc. in Boston,
MA.



3. Fieldwork

Dudley Village - 50
affordable rental
units with retail at
street level



3. Fieldwork

Commercial
greenhouse
involving the
Food Project on
DSNI land.



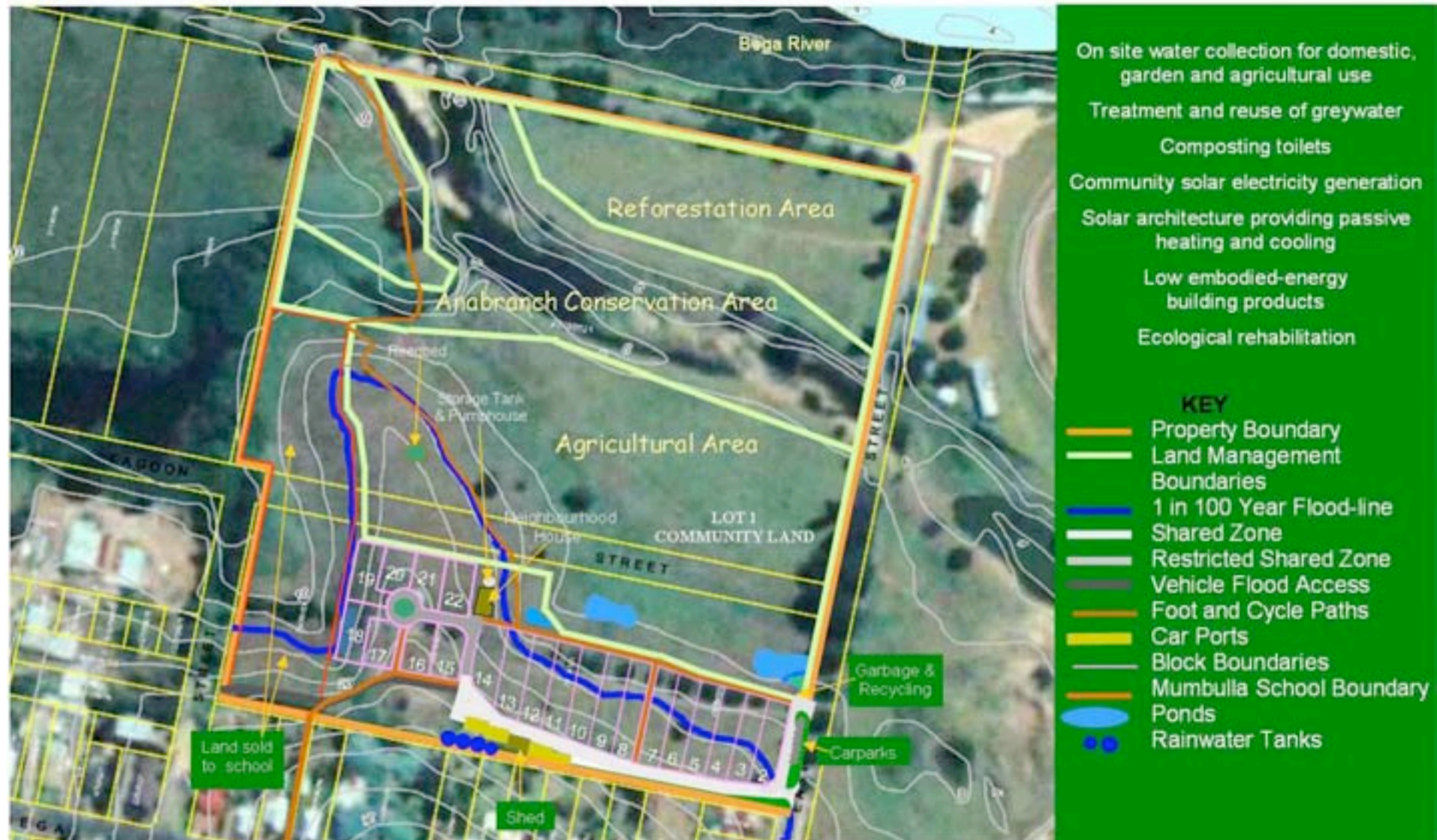
3. Fieldwork

- Bega Eco Neighbourhood Developers
 - NFP community group planning and developing 25 acres of land immediately adjacent to the edge of Bega through intensive group-based planning process – internal zoning code
 - 31 units of housing, 11 affordable rental cooperative units through CHL
 - 100 year flood line and use restrictions
 - onsite greywater treatment and reuse, composting toilets, river rehab, food production, some car-free units
 - negotiated easement through to neighbouring street alongside adjacent school, collection of roof water from adjacent aged care facility
 - individual site and house design restrictions set out in Management Statement.

BEGA ECO-NEIGHBOURHOOD DEVELOPMENT

BASED ON PERMACULTURE DESIGN PRINCIPLES

AN ECOLOGICALLY SUSTAINABLE DIVERSE NEIGHBOURHOOD INTEGRAL TO BEGA





3. Fieldwork

- Utilisation of integrative cognitive mapping developed at ANU on urban water management systems
 - Iterative, group-based system mapping
- Further research in Vermont in September 2009
- Adoption and assessment of methodology - aiming for 2010 funding

4. Reflections

- Resilience *per se* doesn't necessarily guarantee social or environmental equity: many unjust things can prove resilient over time.
 - tension between resilience and adaptive capacity in literature; role of normative values in definition
- Translation into managerial and ownership mechanisms in NRM and taking this through into housing, seems to tease out the integration of equity in social, economic and ecological terms
 - need to examine accessibility and replicability of projects and designs

4. Reflections at this stage

- Appears a useful metaphor and analytical framework, but only when clear about definition & parameters
 - Focus on multi-stakeholder governance would suggest equity, but needs to be measured against broader criteria
 - Vigilance re equity, participation, accessibility and who is defining the terms of projects or programs

Thanks

Berkes F, Folke, C. & Colding, J (Eds.) (1998). Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience, Cambridge, Cambridge University Press.

Nelson, D. R., Adger, W. N. & Brown, K (2007). Adaptation to Environmental Change: Contributions of a Resilience Framework. Annual Review of Environment and Resources.

Olsson, P., Folke, C. & Berkes, F (2004). Adaptive Comanagement for Building Resilience in Social–Ecological Systems. Environmental Management, 34(1), 75–90.

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